CS112 - Fall 2022

Lab21

Instructor: Paul Haskell

INTRODUCTION

In this lab, you will add code to a partial implementation of a doubly linked list. You will work with the HashMap class.

Doubly Linked List

Now you will work on code for a doubly linked list. As we discussed in class, a doubly linked list has links from each node to both previous and following nodes in the list. **CourseInfo/Lab21** contains a program called **Double.java** with a partial implementation of a doubly linked list. You will finish coding the missing methods.

ReadTable

This program gives you more practice reading text files. In your **ReadTable.java** file, you will read a text file with zero or more lines of the following format:

<<integer value>>:<<String>>,

The format is an integer value, then a colon, then a String (which may include spaces), ending with a comma and a NEWLINE. For example:

17:seventeen is my string,

The name of the text file to read shall be fetched from `args[0]`. All integer values and corresponding strings should be saved, e.g. to a `HashMap`, so they can be looked up later.

If any input line in the file does not have this format, print an "ERROR" message to System.err and exit the program.

After successfully reading the input file, print the number of lines in the file to `System.out`, e.g.

12

Then read each additional command line argument from `args`. Each argument should be one of the integers from your input file. If an argument is not an integer, print "ERROR" on **`System.out`**. If one of the arguments is an integer but is not found in your input file, print "NOT FOUND" on **`System.out`**. Otherwise, print the String corresponding to the given integer.

A hint to getting all the details in this assignment correct is to print out the assignment on paper, then cross out each requirement with a pencil when it is completed in your code, and highlight each requirement when you have tested it.

Reminder

Put all your files in your **Lab21** directory and push to GitHub before the deadline. This assignment must be turned in before 11:59pm on Monday Nov 14th

Conclusion

You should have gained some experience working with more advanced data structures. Hopefully you can benefit from the convenience and capabilities of the built-in data structures, and hopefully you can design your own data structures when you need something customized. Some of this code will be useful for **Project02**.

Grading Rubric

Double.java is worth 30 points: 20 points for correct output, 0-10 points for code and design quality, as judged subjectively by the TA's and instructor

ReadTable.java is worth 15 points: 3 points each for 5 test cases